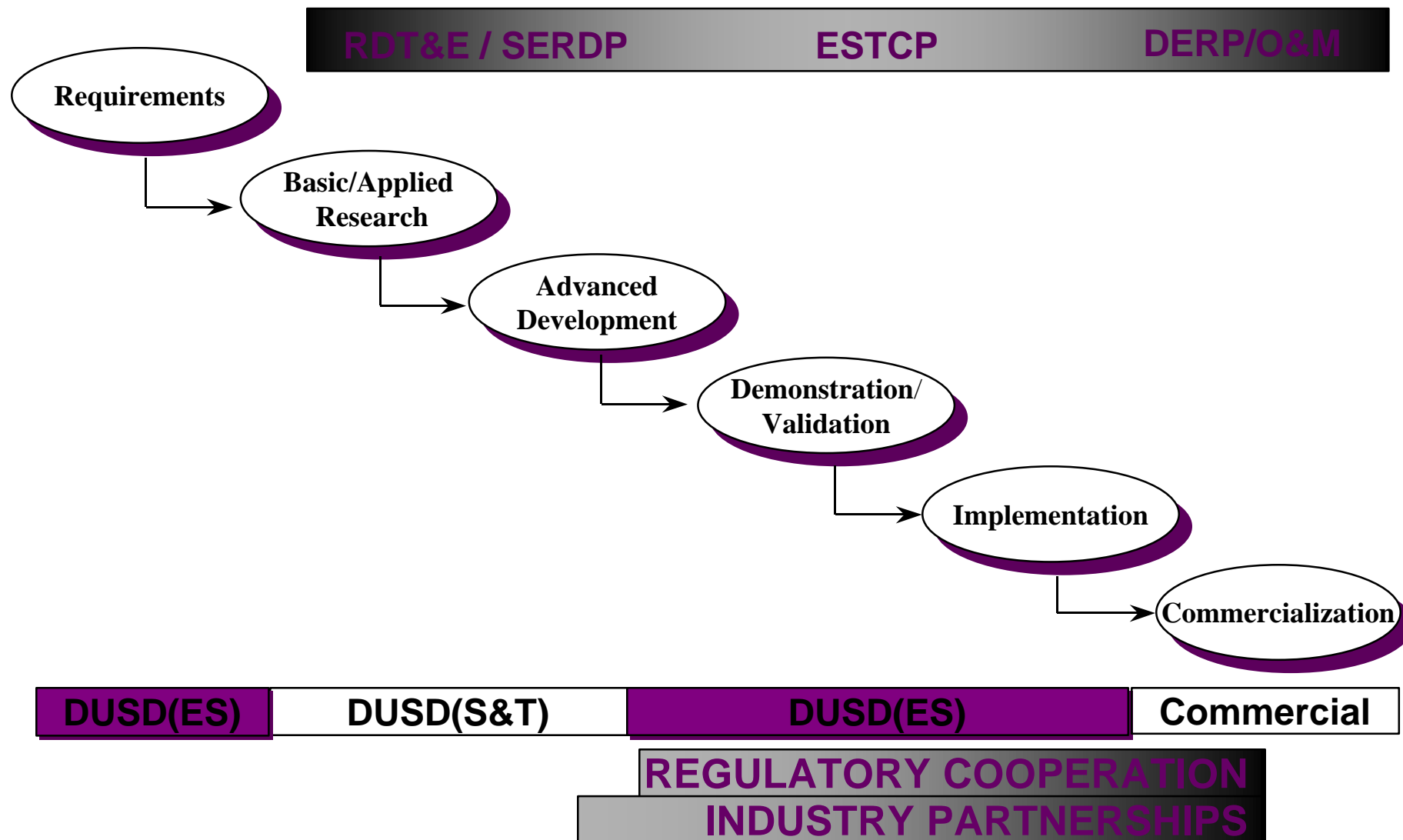


Environmental Security Technology Certification Program





Environmental Technology Development Process





ESTCP Goal

- ◆ **Demonstrate Innovative Cost-effective Environmental Technologies**

- Capitalize on past investments
- Transition technology out of the lab

- ◆ **Promote Implementation**

- Direct technology insertion
- Gain regulatory and end-user acceptance

➡ ***Priority: needs of the DoD user community***



ESTCP Methodology

- ◆ **Partner With Stakeholders and Test at DoD Facilities**
 - Developer, regulators, end-user
 - Competitive selection
- ◆ **Validate Operational Cost and Performance**
 - Independent test and evaluation
 - Satisfy regulatory and user communities
- ◆ **Identify DoD Market Opportunities**
 - Provide support for technology transfer



Technical Areas

Cleanup

- ◆ Site Characterization
 - ◆ Remediation
 - ◆ UXO
- ➡ *protect communities & reduce cleanup costs*

Compliance

- ◆ Detection and Monitoring
 - ◆ Emission Reduction
 - ◆ Disposal
- ➡ *reduce impact on operations*

Pollution Prevention

- ◆ Alternate Maintenance
 - ◆ Alternate Manufacturing
 - ◆ Material Replacement
 - ◆ Recycling
- ➡ *reduce mission impacts & improve readiness*

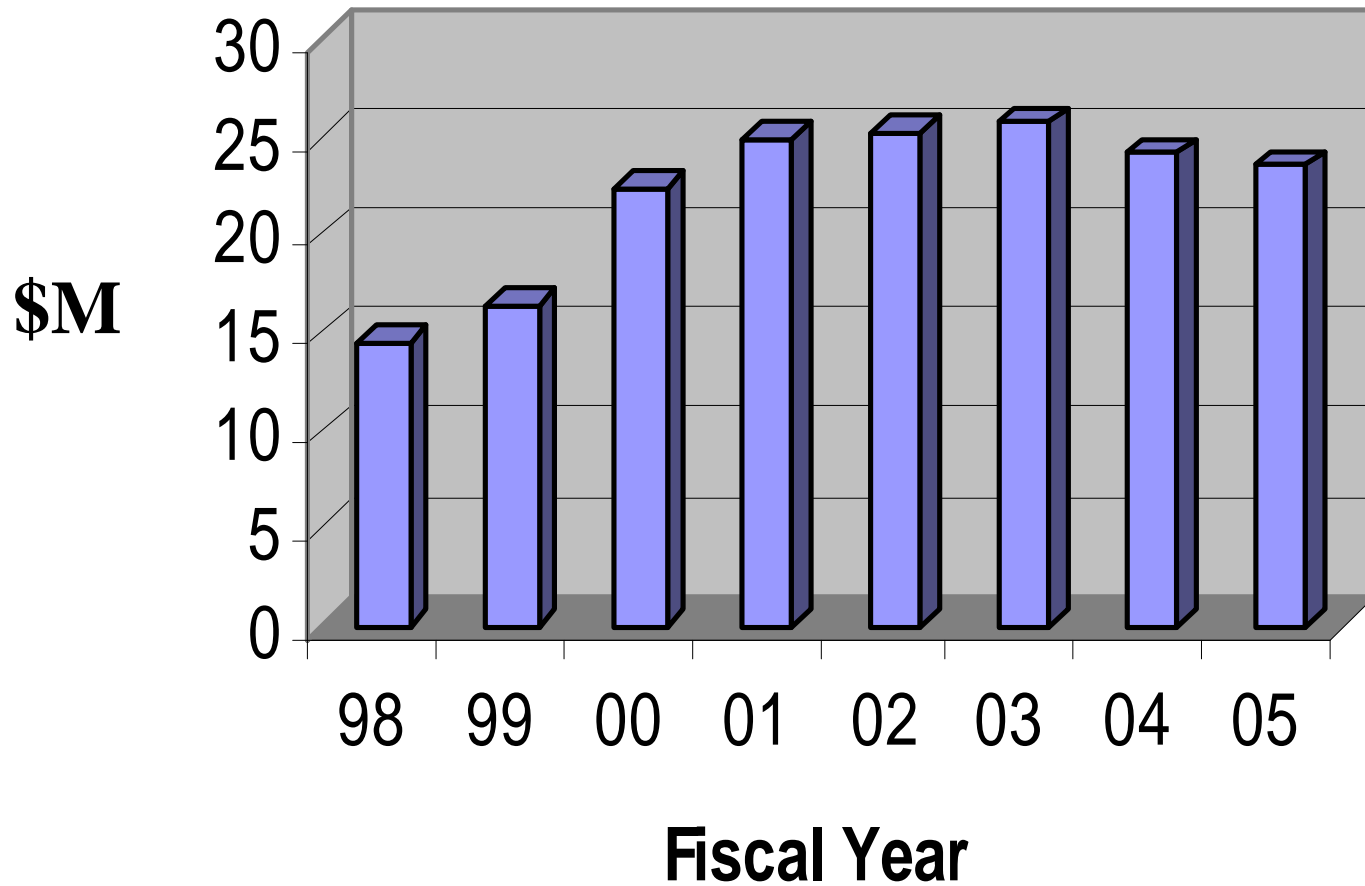


Project Requirements

- **Formal Demonstration Plans**
 - independent review
- **Execution of Technology Demonstration**
 - collect cost and performance data
- **Written reports on cost and performance**
 - technical report
 - Cost and Performance Summary Report
- **Support for transition**
 - regulatory and end-user acceptance
 - guidance and training.



ESTCP FUNDING





Program Office

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Deputy Director

Brad Smith

Admin Officer

Brenda Batch

Prg Mgr for Pollution Prevention

Charles Pellerin

Prg Mgr for Compliance

Robert Holst

Prg Mgr for Cleanup

Catherine Vogel

Acting Prg Mgr for UXO

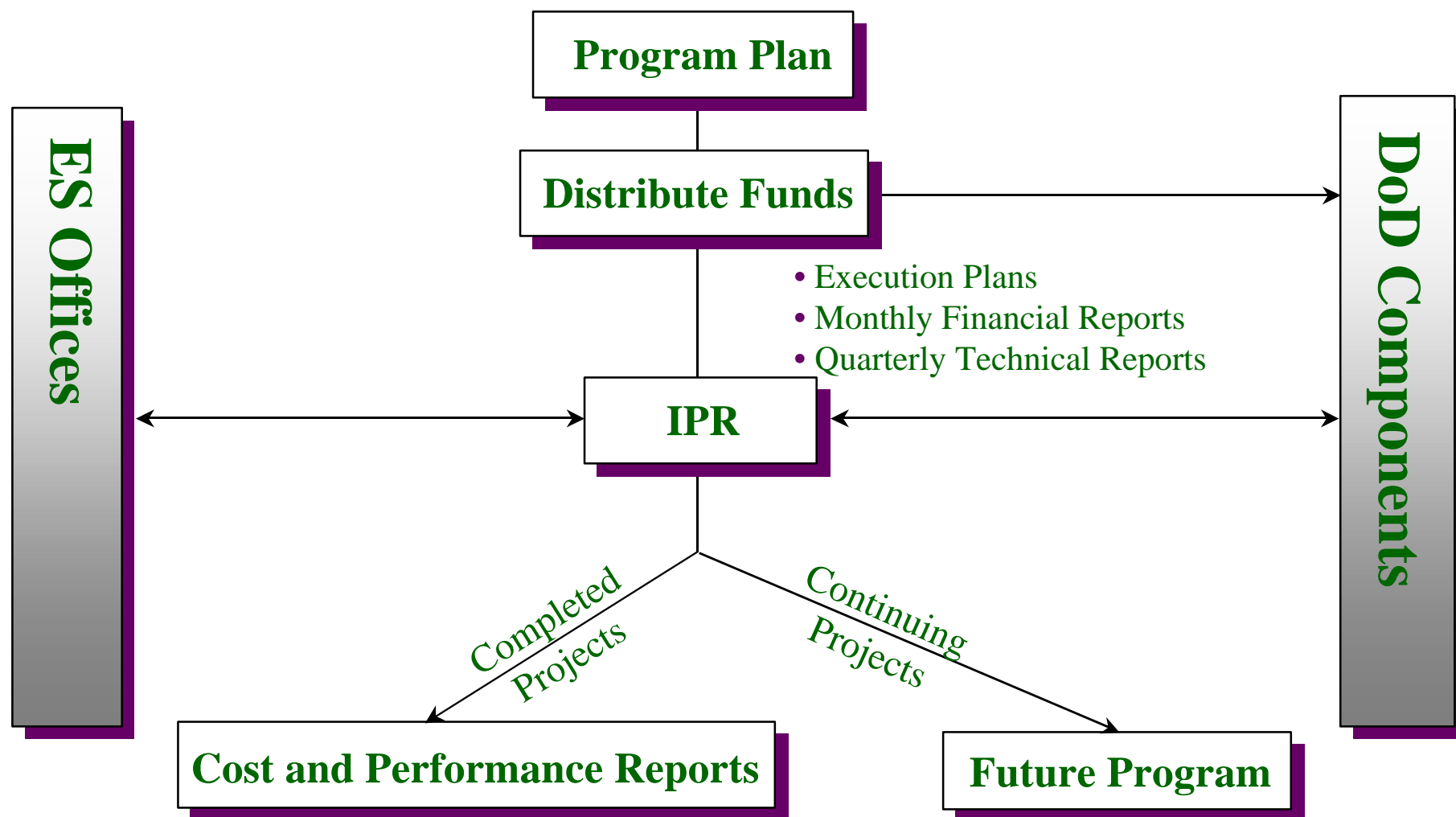
Matthew Chambers

Program Support

HydroGeoLogic

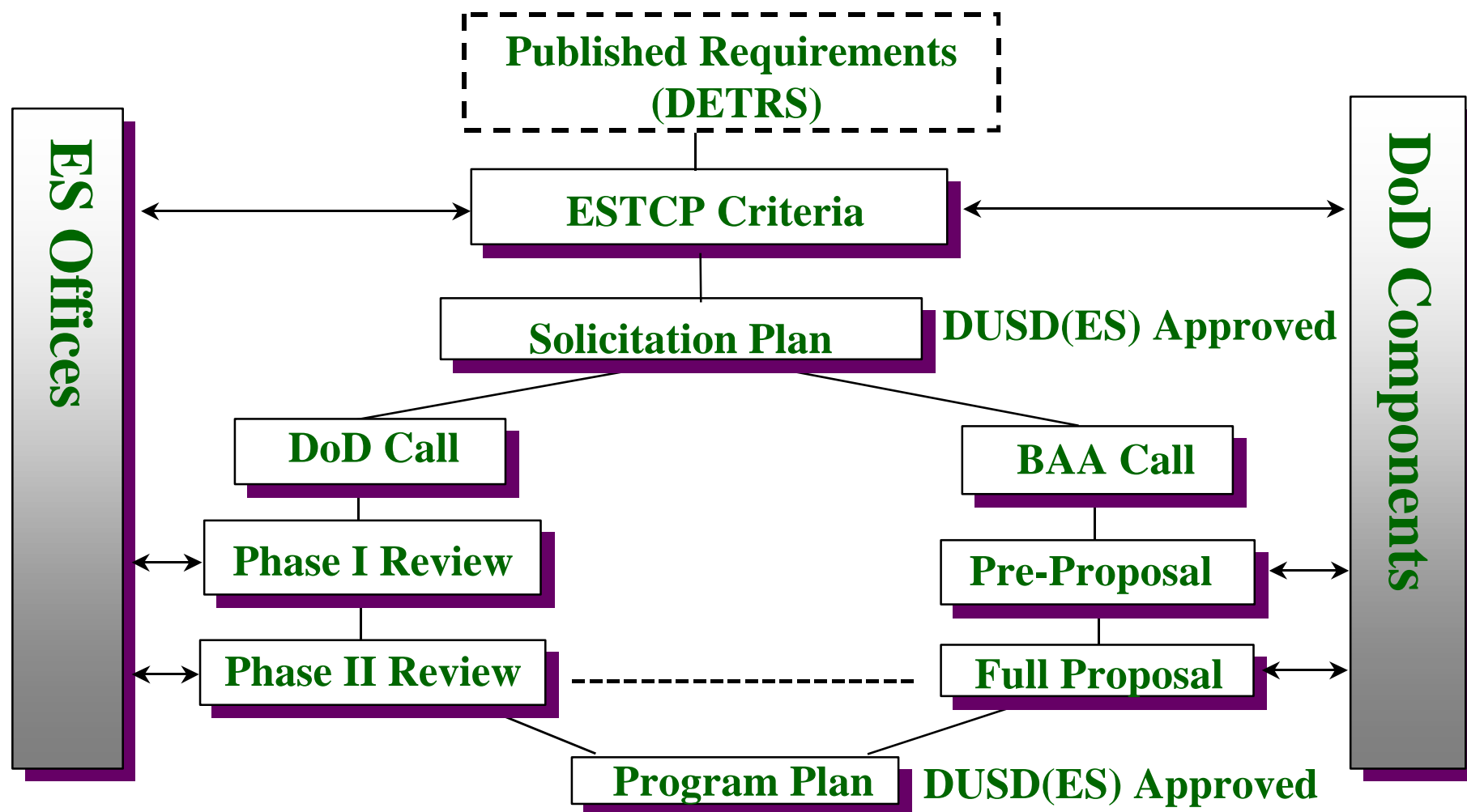


Program Execution





Solicitation Process





DoD Call

- **Call for Dem/Val Projects**
 - Address DoD environmental requirements
- **Competitive Two Phase Process**
 - DoD lead
- **Phase I: technology selection**
 - short written proposal
 - modifications recommended
- **Phase II: final prioritization**
 - oral presentations
 - forge partnerships



BAA

- creating partnerships-

- **Call for Technologies**
 - selected topic areas
- **Pre-proposal White Papers**
 - short written pre-proposal
 - competitive process
 - technology down select
- **Identify DoD Partners**
 - develop Dem/Val project
- **Dem/Val Review: final prioritization**
 - oral presentation



FY 01 Selection Summary

◆ DoD Call

- 83 Phase I proposals reviewed
- 16 Phase II proposals requested
 - » 4 Cleanup
 - » 3 Compliance
 - » 5 Pollution Prevention
 - » 4 UXO

◆ BAA

- 66 Pre-proposals reviewed
- 17 Full proposals requested
 - » 4 UXO detection and discrimination
 - » 13 Cleanup



FY 01 Cleanup New Starts

Direct Push Chemical Sensors for DNAPL and Other VOCs	Navy SPAWAR
Biologically Active Zone Enhancement (BAZE) for In Situ RDX Degradation in Ground Water	Army ERDC
Lead Immobilization Using Phosphate-based Binders	AEC
Electrically Induced Redox Barriers for In-Situ Treatment of Groundwater	Colorado State University
Cyclodextrin Enhanced In-situ Removal of Organic Contaminants from Groundwater at Department of Defense Sites	University of Rhode Island
Demonstration and Validation of a Water and Solute Flux Measuring Device	The University of Florida
Fiber Optic Biosensors for Contaminant Monitoring	Camp Dresser & McKee Inc.
Remediation of Dense Non-Aqueous Phase Liquids through Sequential In Situ Chemical Oxidation & Bioaugmentation	GeoSyntec Consultants
Evaluation of Performance and Costs Associated with Anaerobic Dechlorination	NFESC



FY 01 UXO New Starts

Enhancements to and Utilization of Airborne Magnetometry for the Detection, Characterization, Identification, and Mapping of UXO	Army COE
Evaluation of Airborne Electromagnetic Systems for Detection and Characterization of UXO	Army COE
Diode Laser Neutralization of UXO Via Fiber-Optics Delivered Energy	Army COE
Standardized UXO Test Sites	AEC
Low-Order, Underwater Detonation (UNDET) Study	EOD
UXO Characterization With a Fast 4-D TEM System	Zonge
PELAN - A Transportable, Neutron-Based UXO Identification Probe	Western KY Univ.
UXO Detection in Magnetic Soils Using Variable Pulse-Length EM Induction	Blackhawk
Handheld Sensor for Unexploded Ordnance Discrimination	AETC



FY 02 Solicitation

◆ DoD Call

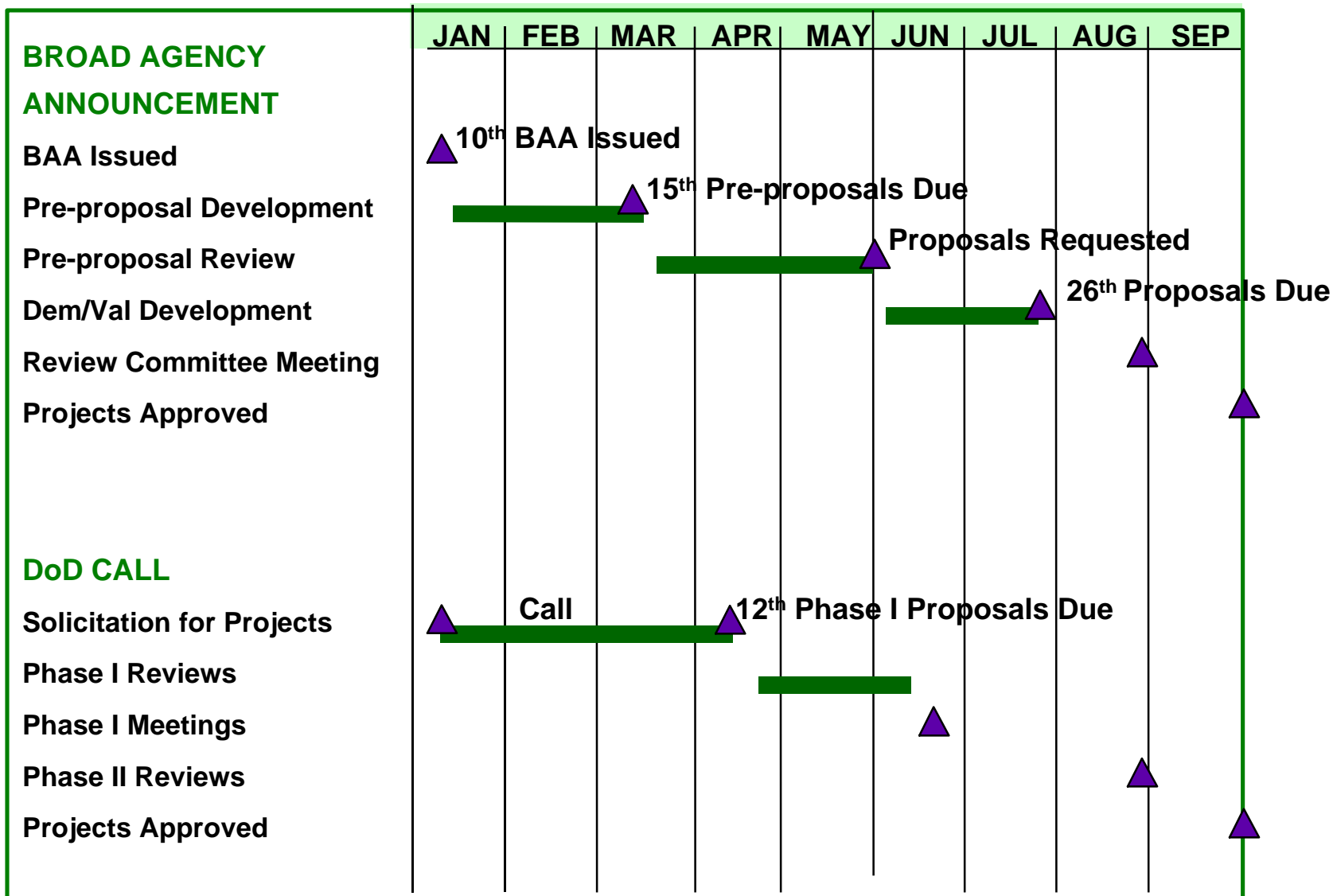
- Cleanup
 - Remediation
 - Site Characterization
 - Site Monitoring
- UXO
 - Site Characterization
 - Remediation

◆ BAA

- Unexploded Ordnance (UXO) Detection, Discrimination, and Remediation
- In Situ Remediation of Groundwater
- In Situ Remediation of Perchlorate in Groundwater



ESTCP FY01 SCHEDULE





Technology Transfer

- ◆ **No Generic Process**

- Technology dependent
- Problem dependent

- ◆ **All Require:**

- Verified high quality cost and performance data
- Effected parties involved early
 - regulators, end-users,
- Tools and material available for implementation
 - hardware, procedures, protocols, software etc.
- Information dissemination and education



ESTCP Cleanup Documents

available from:<http://www.estcp.org>

- ◆ **Technology Assessments:**

- ◆ Groundwater Circulating Well Technology Assessment
- ◆ Technology Status Review In Situ Oxidation

- ◆ **Cost and Performance Reports:**

- ◆ Enhanced In Situ Anaerobic Bioremediation of Fuel-Contaminated Groundwater
- ◆ High Resolution Seismic Reflection to Characterize and Plan Remediation at Hazardous Waste Sites
- ◆ In Situ Radiation Detection Demonstration
- ◆ Joint Small Arms Range Remediation
- ◆ Natural Attenuation of Explosives in Groundwater
- ◆ Permeable Reactive Wall Remediation of Chlorinated Hydrocarbons in Groundwater
- ◆ POL Sensor Validation of SCAPS
- ◆ The Use of Constructed Wetlands to Phytoremediate Explosive-Contaminated Groundwater at Milan Army Ammunition Plant



ESTCP Cleanup Documents

available from:<http://www.estcp.org>

◆ Test Protocols:

- ◆ Draft Treatability Test for In Situ Anaerobic Dechlorination (RABITT)
- ◆ Draft Air Sparging Design Paradigm
- ◆ Draft Protocol for Evaluating, Selecting, and Implementing Monitored Natural Attenuation at Explosives-Contaminated Sites
- ◆ Final Design Guidance for Application of Permeable Reactive Barriers for Groundwater Remediation
- ◆ In Situ Enhanced Source Removal

◆ Environmental Technology Verification Reports:

- ◆ Measurement of Explosives in Contaminated Groundwater (FAST 2000™)
- ◆ Measurement of Explosives in Contaminated Water and Soil (GC-IONSCAN™)



ESTCP UXO Documents

available from:<http://www.estcp.org>

- ◆ **Cost and Performance Reports:**
 - ◆ Assessment of the Remote Minefield Detection System (REMIDS)
 - ◆ Multi-Sensor Towed Array Detection System (MTADS)



Conclusion

- ◆ **New Technologies Being Demonstrated and Validated**
 - Focus on DoD priorities
- ◆ **Technologies Being Transferred and Commercialized**
 - Reduced cost and improved performance
- ◆ **Successful Partnering Leads to Innovation**
- ◆ **All Information is Publicly Available**
 - ESTCP homepage: <http://www.estcp.org>